Dairy Management

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

DEPARTMENT OF
DAIRY SCIENCE
University of Wisconsin-Madison

UW Extension
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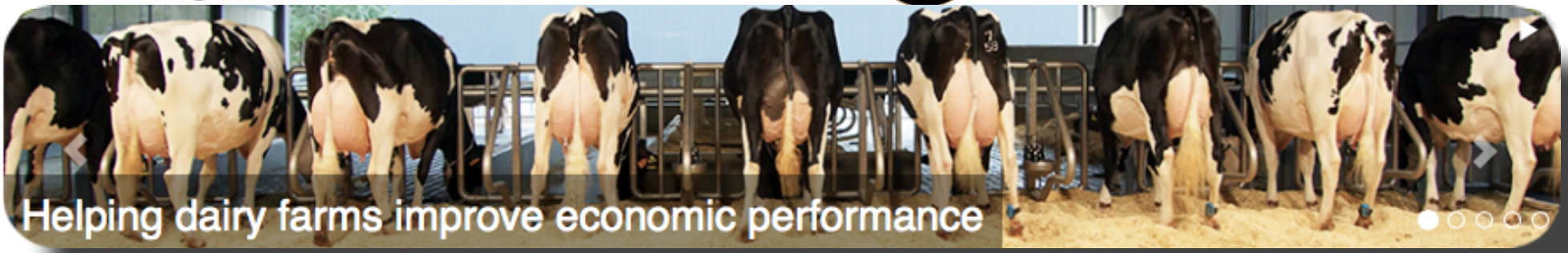

Using Simulators to Improve Profitability on Dairy Farms

UW-Dairy Management
Decision Support TOOLS

Victor E. Cabrera
University of Wisconsin-Madison

USDA

Supported by USDA National Institute of Food and Agriculture Organic Agriculture Research and Extension Initiative Grants No. **2010-51300-20534; 2010-85122-20612, 2011-68004-30340** and **Hatch Grants from CALS UW-Madison**

NIFA

XIX Congreso ANEMBE Oviedo, 25-27 June 2014, Oviedo, Spain

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This site is designed to support dairy farming decision-making focusing on model-based scientific research. The ultimate goal is to provide user-friendly computerized decision support tools to help dairy farmers improve their economic performance along with environmental stewardship.

UW-Dairy Management Decision Support TOOLS

University of Wisconsin

- University of Wisconsin - Madison
- UW - Cooperative Extension
- UW - Dairy Science
- Dairy Cattle Reproduction
- Dairy Cattle Nutrition
- Milk Quality
- UW Dairy Nutrient
- Understanding Dairy Markets
- UW Center for Dairy Profitability

Latest Projects

- Improving Dairy Farm Sustainability
- Genomic Selection and Herd Management
- Dairy Reproduction Decision Support Tools
- Strategies of Pasture Supplementation
- Improving Dairy Cow Fertility

Contact

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More »

Victor E.Cabrera, Ph.D.

Helpful Link

Repro Money Program

Tweets Follow

UW-Madison @UWMadison 11 Apr

Drop everything, this time-lapse will make you want to shout from the mountaintops, "I love Madison!" youtu.be/_8cGpjARTvw

Retweeted by Victor E. Cabrera

Show Media

Victor E. Cabrera @vecabrera 18 Mar

wisc.edu fb.me/6KXw7HsFF

Tweet to @vecabrera

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Dairy Management

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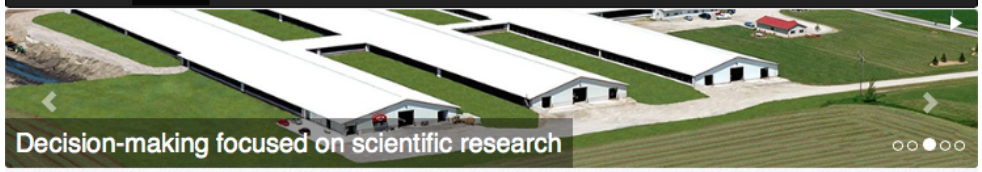


Tools

A collection of the state-of-the-art and scientific-based dairy farm management decision support tools that are user-friendly, interactive, robust, visually attractive, and self-contained. These tools count with associated documentation and video demonstrations. Technical support on their application is also available upon request.

Feeding

- FeedVal 2012
- Grouping Strategies for Feeding Lactating Dairy Cattle
- Optigen® Evaluator
- Income Over Feed Supplement Cost
- Dairy Extension Feed Cost Evaluator
- Corn Feeding Strategies
- Income Over Feed Cost
- Dairy Ration Feed Additive Break-Even Analysis

Heifers

- Heifer Pregnancy Rate
- Cost-Benefit of Accelerated Liquid Feeding Program for Dairy Calves
- Economic Value of Sexed Semen Programs for Dairy Heifers
- Heifer Replacement
- Heifer Break-Even

Reproduction

- Wisconsin-Cornell Dairy Repro: A Reproductive Programs Economics Analysis Tool.
  Replaces previous tools UW-DairyRepro$ and UW-DairyRepro$Plus.
- The Economic Value of a Dairy Cow
- Economic Value of Sexed Semen Programs for Dairy Heifers
- Exploring Timing of Pregnancy Impact on Income Over Feed Cost
- Dairy Reproductive Economic Analysis
- Heifer Pregnancy Rate
- Retention Pay-Off (RPO) Calculator

Production

- Milk Curve Fitter
- Decision Support System Program for Dairy Production and Expansion
- Economic Analysis of Switching from 2X to 3X Milking
- Lactation Benchmark Curves for Wisconsin
- Economic Evaluation of using rbST
- Alfalfa Yield Predictor: Using a Computer Application to Predict Irrigated Alfalfa Yield

Replacement

- The Economic Value of a Dairy Cow
- Value of a Springer
- Heifer Replacement
- Heifer Break-Even
- Herd Structure Simulation
- Retention Pay-Off (RPO) Calculator

Health

- Economic Evaluation of CholiPEARL

Financial

- LGM-Dairy Analyzer
- Working Capital Decision Support System
- The Wisconsin Dairy Farm Ratio Benchmarking Tool
- Decision Support System Program for Dairy Production and Expansion
- Least Cost Optimizer
- LGM-Dairy Premium Sensitivity
- Return to Labor
- Estimate Your Mailbox Price
- LGM Dairy Feed Equivalent Calculator
- Net Guarantee Income Over Feed Cost for LGM-Dairy

Price Risk

- LGM-Dairy Premium Sensitivity
- Least Cost Optimizer
- LGM Premium
- LGM Dairy Feed Equivalent Calculator
- Milk Component Price Analysis

Environment

- Dairy Nutrient Manager
- Grazing-N: Application that Balances Nitrogen in Grazing Systems
- Seasonal Prediction of Manure Excretion
- Dynamic Dairy Farm Model

Decision support tools

Farm-specific assessments

Farm conditions change
Decisions should adjust

Every farm is different

Market conditions change permanently
Prices and cost impact decisions

Applications should be user-friendly
Direct application of results

Selected simulators: Illustrations

Demonstration of practical applications

FeedVal 2012

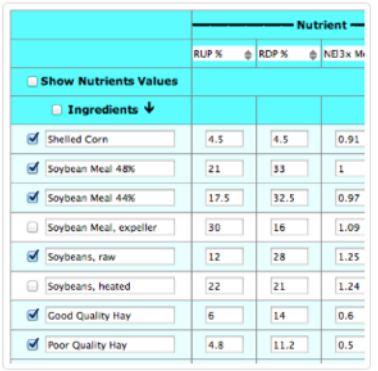
Estimates the market value of dairy feed ingredients

Online Tool (Open)

Online Tool (Beta) (Open)

Presentation (Download)

Demo (Click to View/Hide the Video)



The Economic Value of a Dairy Cow

Calculates the projected net return of a cow or the entire herd.

Online Tool (Open)

Presentation (Download)

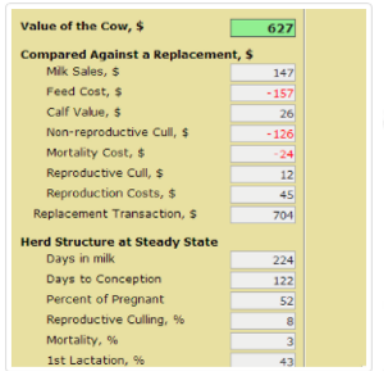
Paper (Download)

Magazine Article (Download)

Demo (Click to View/Hide the Video)

Spanish Version

Herramienta (Abrir)



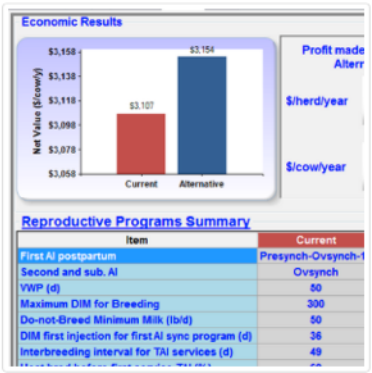
Wisconsin-Cornell Dairy Repro: A Reproductive Programs Economics Analysis Tool.

Replaces previous tools UW-DairyRepro$ and UW-DairyRepro$Plus.

The UWCU-DairyRepro$Plus is a PC-Based tool that implements a complex daily Markov chain model inspired on Giordano et al., 2012 (J. Dairy Science 95:5442) that simulates all cows in a herd and their economics, and computes the net return associated to reproductive performance parameters.

Installer package (Microsoft Windows) (Download)

Instructions and Documentation (Download)



FeedVal

Estimates the true value of dairy feeds

FeedVal 2012

V. E. Cabrera, L. Armentano, R. D. Shaver

Overview | Tool

Upload Data

Template Spreadsheet:

Download

Upload data as Excel file:

Choose File no file selected

Upload

Select Nutrients and Date

Select nutrients:

4 selected

Price date:

2014-04-25

Perform Analysis

Analyze | Download Results | Convert all to kg

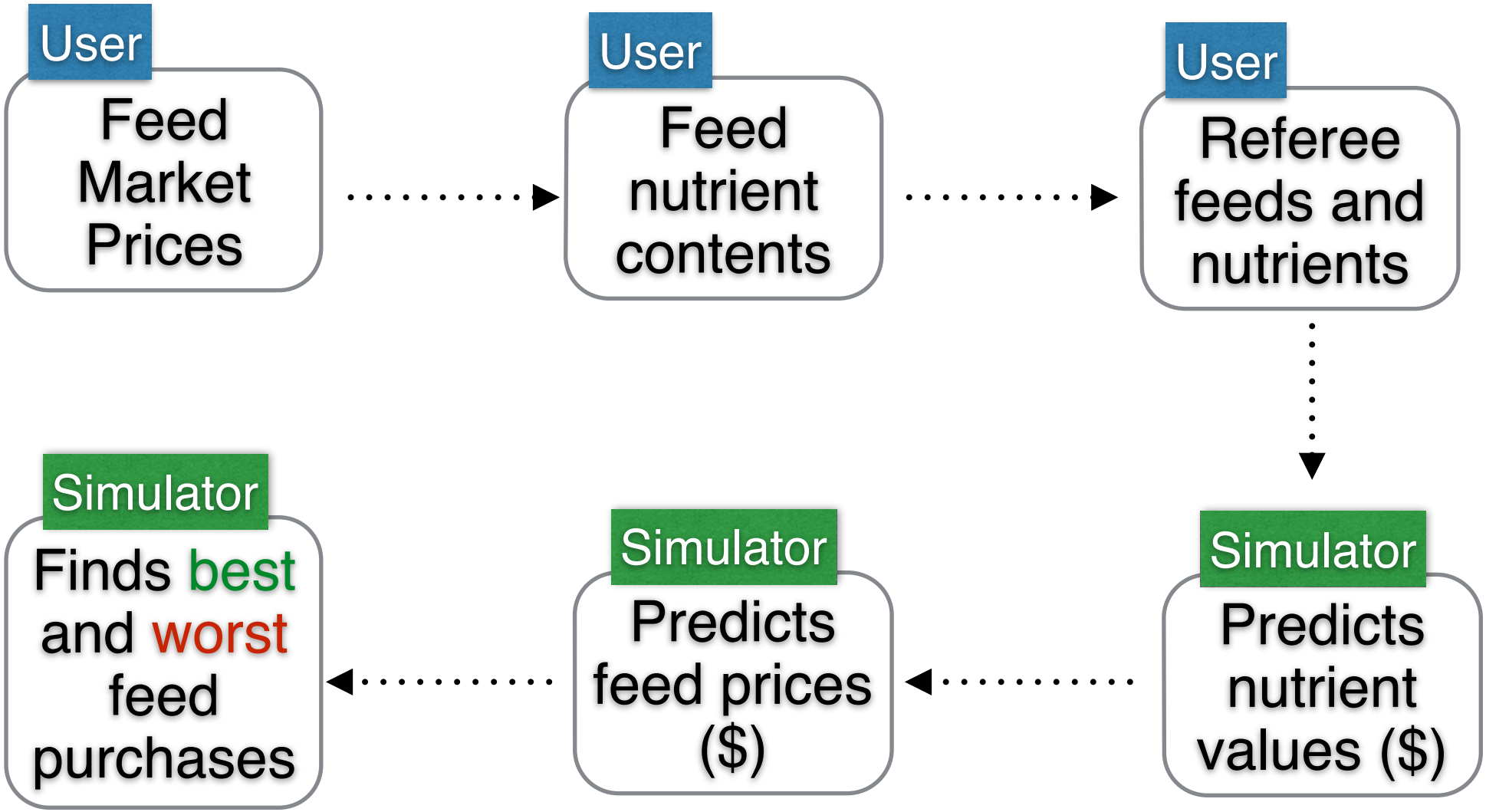
Remove nutrients with negative predicted unit costs.

		Ingredient	Nutrients				As-Fed Basis			Calculated	
			RUP %	RDP %	NEl3x Mcal/lb	peNDF %	DM %	Price* $/Unit	Unit	Predicted Value $/Unit	Actual Price as % of Predicted Value
1	☑	Shelled Corn	4.5	4.5	0.91	0	86	5.04	bu		
2	☑	Soybean Meal 48%	21	33	1	0	89	516	ton		
3	☑	Soybean Meal 44%	17.5	32.5	0.97	0	89	504	ton		
4	☐	Soybean Meal, expeller	30	16	1.09	0	92		ton		
5	☑	Soybeans, raw	12	28	1.25	0	87	13.4	bu		
6	☐	Soybeans, heated	22	21	1.24	0	92		ton		
7	☑	Good Quality Hay	6	14	0.6	35	87	216.44	ton		
8	☑	Poor Quality Hay	4.8	11.2	0.5	50	87	118.75	ton		
9	☑	Corn Silage	2.8	4.2	0.67	30	35	50.4	ton		
10	☐	Earlage/Snaplage	3.6	5.4	0.82	0	60		ton		
11	☑	Distillers Dried Grains	15	15	0.9	0	89	240	ton		
12	☐	High-Moisture Corn	3.6	5.4	0.95	0	70		ton		
13	☑	Tallow	0	0	2.06	0	99	29.5	cwt		
14	☑	Blood Meal	76	19	1.06	0	94	1100	ton		
15	☑	Urea	0	287	0	0	99	472	ton		
16	☐	Straw	4	1	0.45	75	85		ton		
17	☑	Soy Hulls	6	8	0.67	0	89	203	ton		

Helps find best feed purchases

FeedVal

Information flow



Anatomy of FeedVal

Upload Data

Template Spreadsheet:

Download

Upload data as Excel file:

Choose File no file selected

Upload

Select Nutrients and Date

Select nutrients:

4 selected

Price date:

2014-04-25

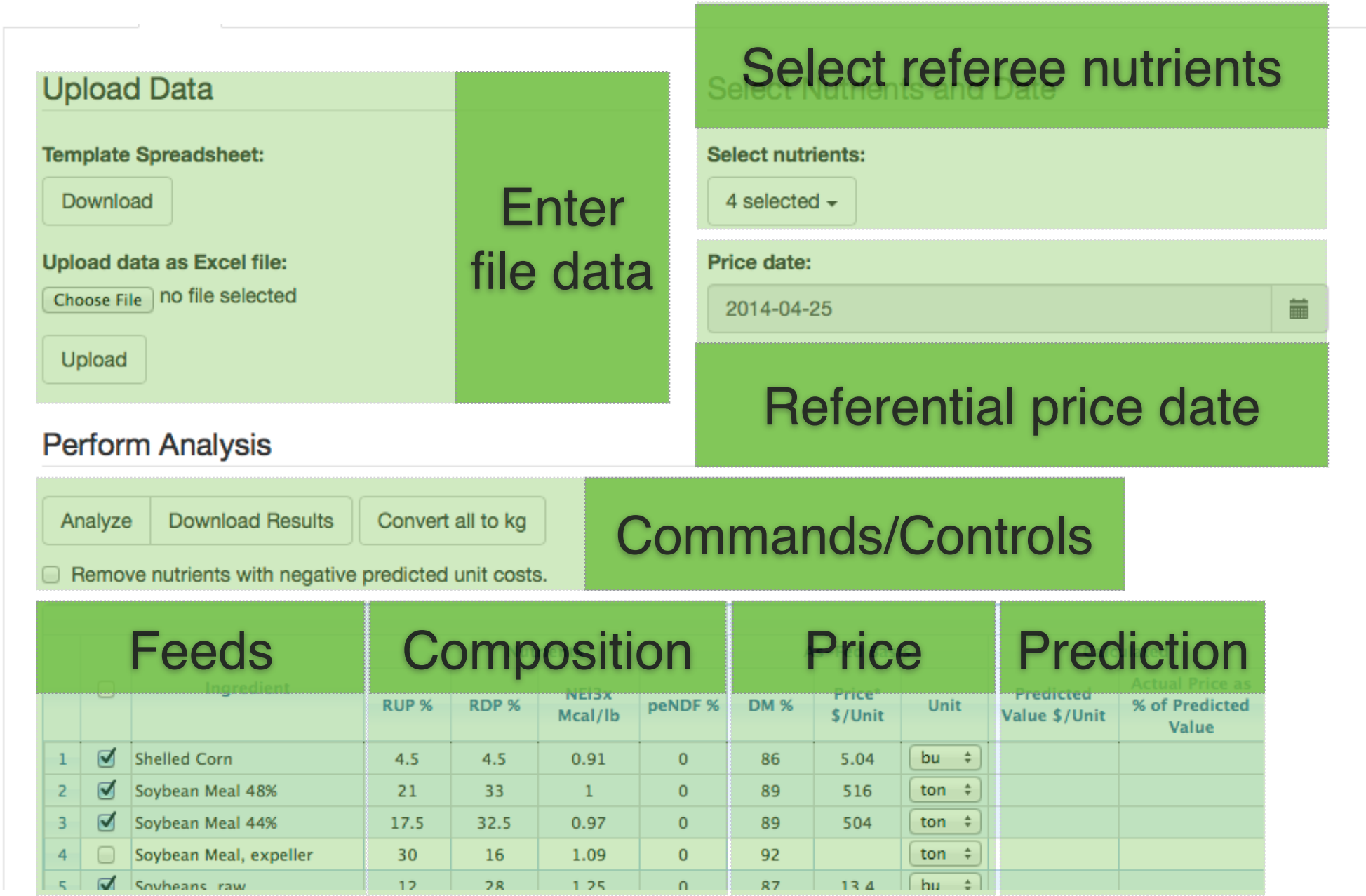
Perform Analysis

Analyze | Download Results | Convert all to kg

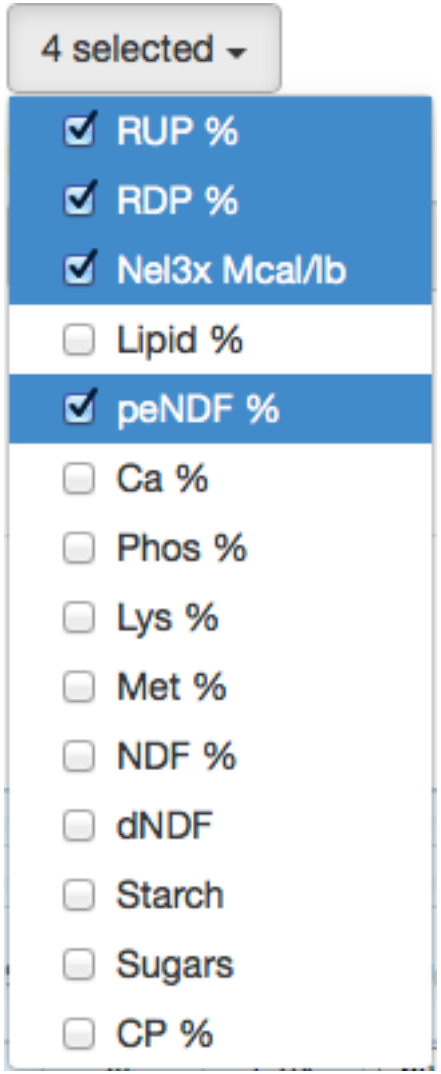
Remove nutrients with negative predicted unit costs.

		Ingredient	Nutrients				As-Fed Basis			Calculated	
			RUP %	RDP %	NEl3x Mcal/lb	peNDF %	DM %	Price* $/Unit	Unit	Predicted Value $/Unit	Actual Price as % of Predicted Value
1	☑	Shelled Corn	4.5	4.5	0.91	0	86	5.04	bu		
2	☑	Soybean Meal 48%	21	33	1	0	89	516	ton		
3	☑	Soybean Meal 44%	17.5	32.5	0.97	0	89	504	ton		
4	☐	Soybean Meal, expeller	30	16	1.09	0	92		ton		
5	☑	Soybeans, raw	12	28	1.25	0	87	13.4	bu		

Anatomy of FeedVal



Referee nutrients



2 Nutrients
Minimum

13 Nutrients
Maximum

Less or qual to
Number of referee feeds

Depends on
Type of analysis wanted

Referee feeds

		Ingredient
1	☑	Shelled Corn
2	☑	Soybean Meal 48%
3	☑	Soybean Meal 44%
4	☐	Soybean Meal, expeller
5	☑	Soybeans, raw
6	☐	Soybeans, heated
7	☑	Good Quality Hay
8	☑	Poor Quality Hay
9	☑	Corn Silage
10	☐	Earlage/Snaplage
11	☑	Distillers Dried Grains
12	☐	High-Moisture Corn
13	☑	Tallow
14	☑	Blood Meal
15	☑	Urea

Denoted by a check mark
As many as 40

More or equal to
Number of referee nutrients

Unchecked feeds
Still predicts their price

Depends on
Type of analysis wanted
and feed prices available

Nutrient composition and prices

		Ingredient	Nutrients				As-Fed Basis		
			RUP %	RDP %	NEl3x Mcal/lb	peNDF %	DM %	Price* $/Unit	Unit
1	☑	Shelled Corn	4.5	4.5	0.91	0	86	0.20	kg
2	☑	Soybean Meal 48%	21	33	1	0	89	0.57	kg
3	☑	Soybean Meal 44%	17.5	32.5	0.97	0	89	0.56	kg
4	☐	Soybean Meal, expeller	30	16	1.09	0	92		kg
5	☑	Soybeans, raw	12	28	1.25	0	87	0.49	kg
6	☐	Soybeans, heated	22	21	1.24	0	92		kg
7	☑	Good Quality Hay	6	14	0.6	35	87	0.24	kg
8	☑	Poor Quality Hay	4.8	11.2	0.5	50	87	0.13	kg

Everything is "editable"

- Name of feed
- Nutrient composition
- Market prices
- Units

Changes:

- Through input file
- Directly online

April 25, 2004 - Midwest prices

		Ingredient	Nutrients				As-Fed Basis			Calculated	
			RUP %	RDP %	NEl3x Mcal/lb	peNDF %	DM %	Price* $/Unit	Unit	Predicted Value $/Unit	Actual Price as % of Predicted Value
1	☑	Shelled Corn	4.5	4.5	0.91	0	86	0.20	kg	0.277/kg	72
2	☑	Soybean Meal 48%	21	33	1	0	89	0.57	kg	0.552/kg	103
3	☑	Soybean Meal 44%	17.5	32.5	0.97	0	89	0.56	kg	0.502/kg	112
4	☐	Soybean Meal, expeller	30	16	1.09	0	92		kg	0.675/kg	
5	☑	Soybeans, raw	12	28	1.25	0	87	0.49	kg	0.488/kg	100
6	☐	Soybeans, heated	22	21	1.24	0	92		kg	0.624/kg	
7	☑	Good Quality Hay	6	14	0.6	35	87	0.24	kg	0.232/kg	104
8	☑	Poor Quality Hay	4.8	11.2	0.5	50	87	0.13	kg	0.186/kg	70
9	☑	Corn Silage	2.8	4.2	0.67	30	35	0.06	kg	0.079/kg	76
10	☐	Earlage/Snaplage	3.6	5.4	0.82	0	60		kg	0.172/kg	
11	☑	Distillers Dried Grains	15	15	0.9	0	89	0.26	kg	0.426/kg	61
12	☐	High-Moisture Corn	3.6	5.4	0.95	0	70		kg	0.226/kg	
13	☑	Tallow	0	0	2.06	0	99	0.65	kg	0.570/kg	114
14	☑	Blood Meal	76	19	1.06	0	94	1.21	kg	1.262/kg	96
15	☑	Urea	0	287	0	0	99	0.52	kg	0.525/kg	99
16	☐	Straw	4	1	0.45	75	85		kg	0.141/kg	
17	☑	Soy Hulls	6	8	0.67	0	89	0.22	kg	0.251/kg	88
18	☑	Corn Gluten Feed	7.5	16.5	0.79	0	89	0.19	kg	0.313/kg	61
19	☑	Canola Meal, expeller	17	21	0.8	0	89	0.42	kg	0.435/kg	97
20	☐	Canola Meal, solvent	13.5	24.5	0.74	0	89		kg	0.384/kg	
21	☑	Cottonseed Meal	20	25	0.78	0	89	0.48	kg	0.472/kg	102
22	☑	Wheat Middlings	4.5	14	0.76	0	89	0.19	kg	0.265/kg	72
23	☑	Whole Cottonseed	6	18	0.88	22	89	0.50	kg	0.316/kg	158
24	☐	Hi-Pro Distillers	22	22	0.9	0	89		kg	0.521/kg	
25	☐	Wet Distillers	12	18	0.92	0	45		kg	0.203/kg	
26	☐	Brewers Dried Grains	15	15	0.78	0	89		kg	0.396/kg	
27	☐	Wet Brewers	12	18	0.78	0	25		kg	0.103/kg	
28	☐	Malt Sprouts	9	21	0.68	0	89		kg	0.310/kg	
29	☑	Sunflower Meal	8	21	0.63	0	89	0.30	kg	0.286/kg	105
30	☑	Beet Pulp	5	5	0.67	0	89	0.30	kg	0.234/kg	128
31	☑	Hominy	4	8	0.86	0	89	0.16	kg	0.275/kg	58
32	☑	Linseed Meal	16	16	0.72	0	89	0.46	kg	0.395/kg	116
33	☑	Molasses	2	4	0.8	0	89	0.23	kg	0.229/kg	100
34	☑	Corn Gluten Meal	42	23	1.08	0	89	0.92	kg	0.804/kg	114
35	☐	Wheat Bran	3.5	14	0.73	0	89		kg	0.246/kg	
36	☑	Oats	4.5	8.5	0.81	0	89	0.32	kg	0.269/kg	119
37	☑	Wheat	4.2	10	0.91	0	89	0.25	kg	0.293/kg	85
38	☑	Barley	3.4	9	0.85	0	89	0.26	kg	0.267/kg	98
39	☐	Corn Stover	2.17	4.03	0.41	67	80		kg	0.110/kg	
40	☐	Whey	1	9	0.85	0	20		kg	0.054/kg	

4 referee nutrients

- RUP
- RDP
- NEL
- peNDF

26 referee feeds

Prices available

13 good purchase feeds

Green cells

April 25, 2004 - Midwest prices

		Ingredient	Nutrients				As-Fed Basis			Calculated	
			RUP %	RDP %	NEl3x Mcal/lb	peNDF %	DM %	Price* $/Unit	Unit	Predicted Value $/Unit	Actual Price as % of Predicted Value
11	☑	Distillers Dried Grains	15	15	0.9	0	89	0.26	kg	0.426/kg	61

Distiller Dried Grains: A BARGAIN

23	☑	Whole Cottonseed	6	18	0.88	22	89	0.50	kg	0.316/kg	158

Whole Cottonseed: A RIP-OFF

5	☑	Soybeans, raw	12	28	1.25	0	87	0.49	kg	0.488/kg	100

Soybeans, raw: OK PURCHASE

Monthly market watch (Midwest)

FeedVal 2012 predicted dairy feed prices and rankings for March 2014[1]

V.E. Cabrera, P. Hoffman, and R. Shaver

Ingredient	DM %	Unit	Feed Prices ($/Unit) Market	Predicted	Actual Price as % of Predicted	Best-buy Ranking
Wet Distillers	45	ton	76.0	186.4	41	1
Poor Quality Hay	87	ton	75.0	145.5	52	2
Hominy	89	ton	141.0	232.5	61	3
Distillers Dried Grains	89	ton	255.0	402.0	63	4
Corn Gluten Feed	89	ton	178.0	279.4	64	5
Shelled Corn	86	bu	4.8	6.6	73	6
Corn Silage	35	ton	48.0	61.3	78	7
Wheat Middlings	89	ton	185.0	228.6	81	8
Soy Hulls	89	ton	200.0	223.4	90	9
Canola Meal, expeller	89	ton	375.8	418.9	90	10
Soybean Meal 48%	89	ton	499.0	529.7	94	11
Cottonseed Meal	89	ton	440.0	462.1	95	12
Corn Gluten Meal	89	ton	780.0	820.8	95	13
Wheat	89	bu	6.9	6.9	99	14
Soybean Meal 44%	89	ton	487.0	474.9	103	15
Sunflower Meal	89	ton	270.0	261.8	103	16
Urea	99	ton	472.0	454.1	104	17
Blood Meal	94	ton	1450.0	1352.5	107	18
Linseed Meal	89	ton	415.0	382.5	108	19
Molasses	89	ton	205.0	187.6	109	20
Good Quality Hay	87	ton	216.4	193.2	112	21
Barley	89	cwt	12.9	11.2	115	22
Soybeans, raw	87	bu	14.3	12.2	117	23
Oats	89	ton	290.0	230.5	126	24
Tallow	99	cwt	29.0	22.1	131	25
Beet Pulp	89	ton	270.0	205.4	131	26
Whole Cottonseed	89	ton	438.0	265.1	165	27

>2,000 Subscribers

Predicted prices for non-referee feeds

Disclaimer

Pricing drought stressed corn silage

Not available in the selection list

		Ingredient	Nutrients		As-Fed Basis			Calculated	
			TDN %	CP %	DM %	Price* $/Unit	Unit	Predicted Value $/Unit	Actual Price as % of Predicted Value
1	☑	Shelled Corn	89	9.4	84.5	0.31	kg		
2	☑	Soybean Meal 48%	81	53.8	89	0.03	kg		
3	☑	Drought Stress Corn Silage	65	10	35	0.02	kg		

Based only on fertilizer prices

UW Extension Cooperative Extension

Pricing Drought Stressed Corn Silage

Joe Lauer, Randy Shaver, Dan Undersander, Kevin Schoessow, and Greg Blonde
University of Wisconsin - Cooperative Extension

Revised July 2012

The Economic Value of Dairy Cow

Calculates the projected net return of a cow

Valor Económico de una Vaca Lechera

V.E. Cabrera, UW-Madison Dairy Science

English (Spanish) **Unidades:** EEUU (Métrico) Inglaterra

Visión General | Análisis para una Vaca | Análisis del Hato

ENTRADAS - Editar Valores en este Bloque

Parametros de Vaca Evaluada	
Lactancia Actual	3
Meses despues del parto	5
Meses de gestacion	1
Prod. de Leche esperada durante resto de lactancia, %	100
Prod. de Leche esperada durante sig. lactancias, %	100
Parametro de Vaca de Reemplazo	
Mejora genetica esperada, % de leche adicional	0
Produccion del Hato y Variables de Reproduccion	
Indice de descarte del hato, %/año	35
Promedio de produccion, kg/vaca por año	10890
Tasa de Preñez a 21 días, %	18
Costos de Reproduccion, $/vaca por mes	20.00
Ultimo Mes Despues del Parto Para Inseminar la Vaca	10
Leche Minima para Descartar Vaca no Prenada, kg/dia	22.68
Pérdida de preñeces > 35 días de gestación, %	22.6
Peso Promedio de una Vaca, kg	592.39
Parametros Economicos del Hato	
Costo de Reemplazo, $/vaca	1300.00
Costo de Recuperacion al Descarte, $/kg peso animal vivo	0.84
Valor Ternero/Ternera, $/ternero	100.00
Precio Leche, $/kg	0.35
Contenido de Grasa en Leche, %	3.5
Costo de Alimentacion de Vacas Lactantes, $/kg materia seca	0.22
Costo de Alimentacion de Vacas Secas, $/kg materia seca	0.18
Tasa de Interes, %/año	6

SALIDAS - Resultados Interactivos

Valor de la Vaca, $	627
Comparacion Respecto a un Reemplazo, $	
Ventas de Leche, $	147
Costos de Alimentacion, $	-157
Valor Ternero/Ternera, $	26
Desecho No-reproductivo, $	-126
Costo de Mortalidad, $	-24
Seleccion Reproductiva, $	12
Costos de Reproduccion, $	45
Transaccion de Reemplazo, $	704
Estructura del Hato en Equilibrio	
Dias en Leche	224
Dias a la Conceptcion	122
Porcentaje de Vacas Prenadas	52
Descarte Reproductivo, %	8
Mortalidad, %	3
1ra Lactancia, %	43
2da Lactancia, %	27
>= 3ra Lactancia, %	30
Economia de una vaca promedio, $/año	
Retorno Neto, $	1969
Ventas de Leche, $	3806
Costos de Alimentacion, $	-1522
Ventas Terneros, $	60
Costo de Descarte No-reproductivo, $	-198
Costo de Mortalidad, $	-38
Costo de Desecho Reproductivo, $	-59
Costo de Reproduccion, $	-80

Assists decision-making for **replacement, reproduction, treatment…**

Value of a cow

Concept and principle

Discounted future net return

Always compared to an immediate replacement

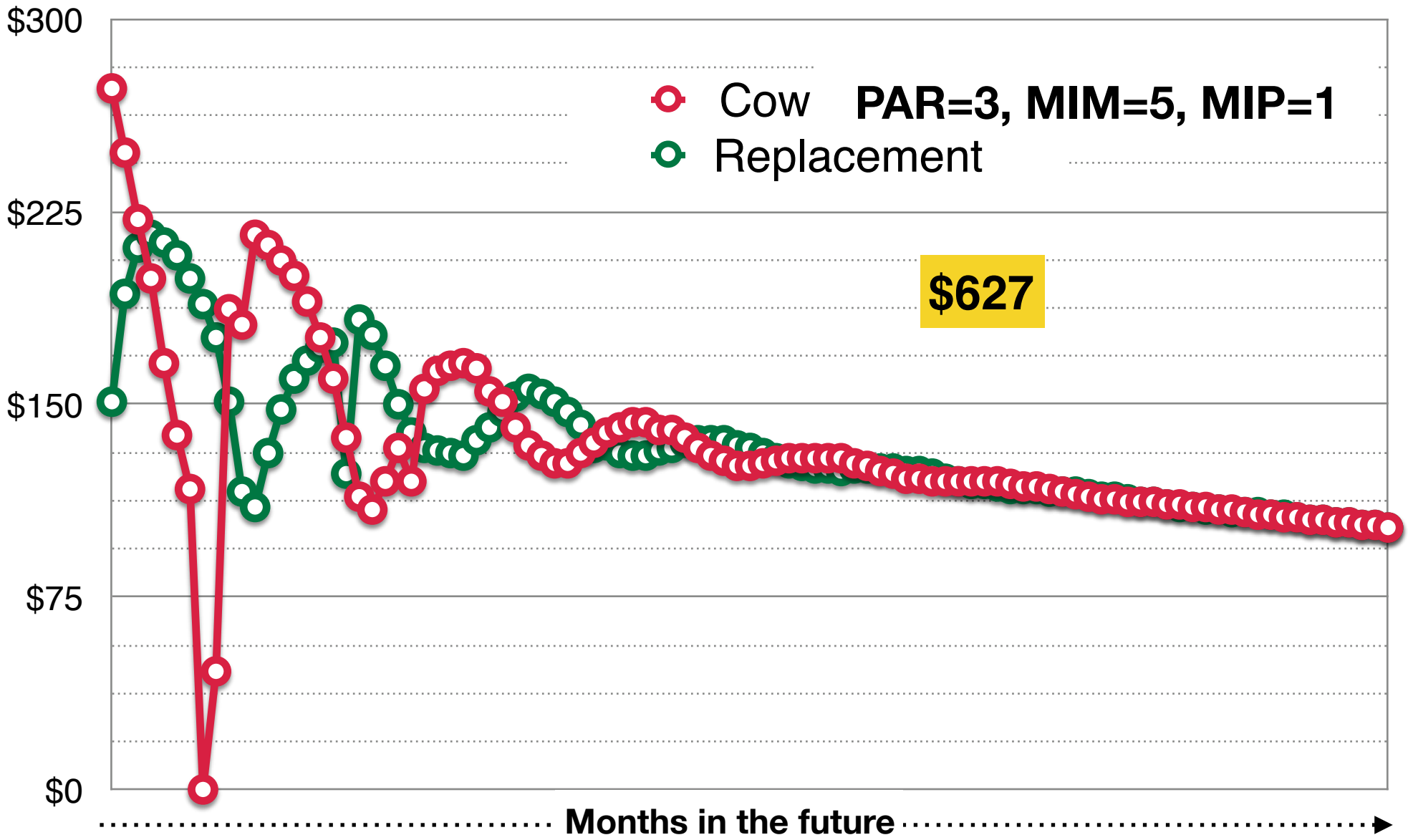
General interpretation

\+ value = **KEEP**

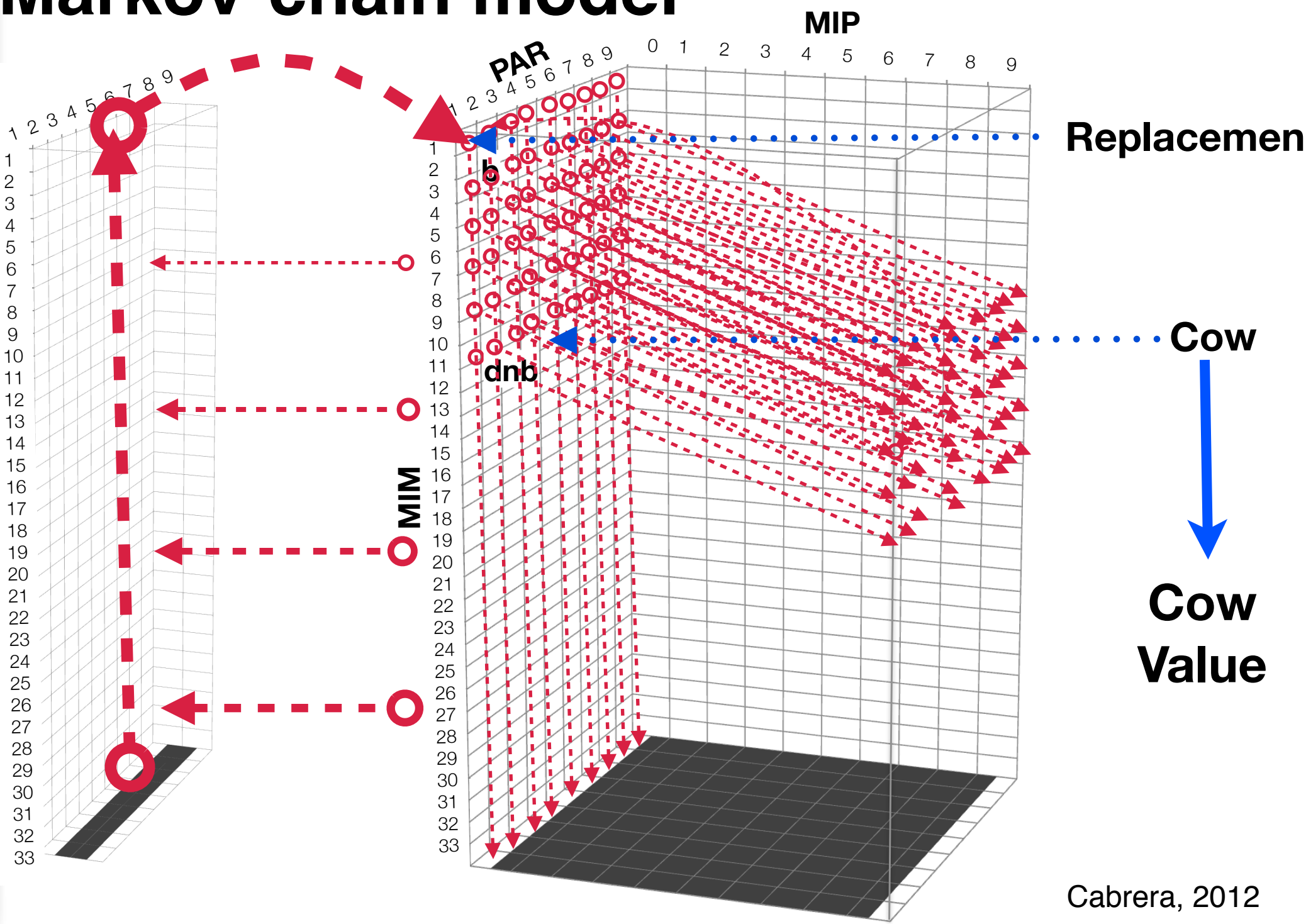
\- value = **REPLACE**

Value of a cow

Calculation: Aggregated future net returns



Markov-chain model



Cabrera, 2012

Critical decision-making

Practical application

Optimal replacement
Keep or replace

Optimal treatment
Treat or not treat

Optimal breeding
Breed or no to breeding

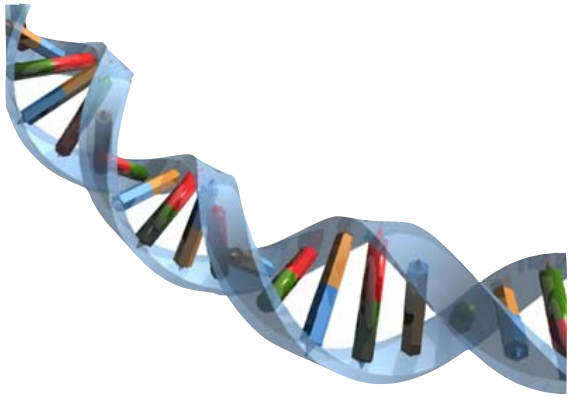
Individual cow management

Critical information
Value of a pregnancy
Cost of pregnancy loss
Cost of day open

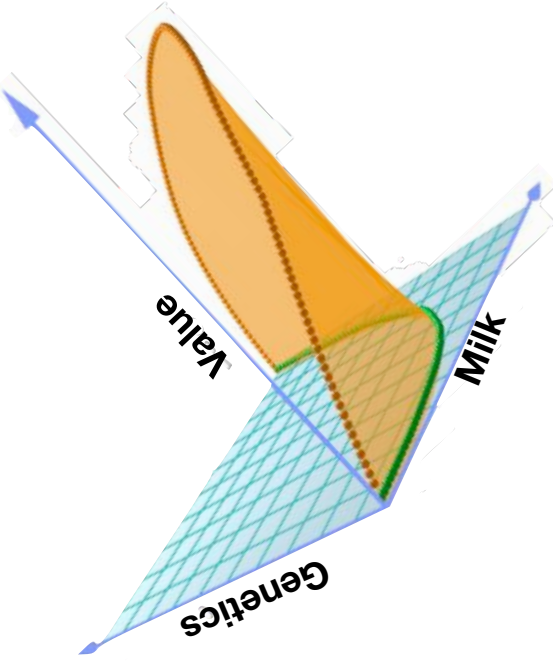
Most important factors

For decision-making

Cow expected productivity
Related to herd



Replacement genetic make-up
Compared to herd



Anatomy Simulator Value of a Cow

English Spanish **Unidades:** EEUU Métrico Inglaterra

Visión General | Análisis para una Vaca | Análisis del Hato

ENTRADAS - Editar Valores en este Bloque

Parametros de Vaca Evaluada

Lactancia Actual	3
Meses despues del parto	5
Meses de gestacion	1
Prod. de Leche esperada durante resto de lactancia, %	100
Prod. de Leche esperada durante sig. lactancias, %	100

Parametro de Vaca de Reemplazo

Mejora genetica esperada, % de leche adicional	0

Produccion del Hato y Variables de Reproduccion

Indice de descarte del hato, %/año	35
Promedio de produccion, kg/vaca por año	10890
Tasa de Preñez a 21 días, %	18
Costos de Reproduccion, $/vaca por mes	20.00
Ultimo Mes Despues del Parto Para Inseminar la Vaca	10
Leche Minima para Descartar Vaca no Prenada, kg/dia	22.68
Pérdida de preñeces > 35 días de gestación, %	22.6
Peso Promedio de una Vaca, kg	592.39

Parametros Economicos del Hato

Costo de Reemplazo, $/vaca	1300.00
Costo de Recuperacion al Descarte, $/kg peso animal vivo	0.84
Valor Ternero/Ternera, $/ternero	100.00
Precio Leche, $/kg	0.35
Contenido de Grasa en Leche, %	3.5
Costo de Alimentacion de Vacas Lactantes, $/kg materia seca	0.22
Costo de Alimentacion de Vacas Secas, $/kg materia seca	0.18
Tasa de Interes, %/año	6

SALIDAS - Resultados Interactivos

Valor de la Vaca, $	**627**
Comparacion Respecto a un Reemplazo, $	
Ventas de Leche, $	147
Costos de Alimentacion, $	-157
Valor Ternero/Ternera, $	26
Desecho No-reproductivo, $	-126
Costo de Mortalidad, $	-24
Seleccion Reproductiva, $	12
Costos de Reproduccion, $	45
Transaccion de Reemplazo, $	704
Estructura del Hato en Equilibrio	
Dias en Leche	224
Dias a la Conceptcion	122
Porcentaje de Vacas Prenadas	52
Descarte Reproductivo, %	8
Mortalidad, %	3
1ra Lactancia, %	43
2da Lactancia, %	27
>= 3ra Lactancia, %	30
Economia de una vaca promedio, $/año	
Retorno Neto, $	1969
Ventas de Leche, $	3806
Costos de Alimentacion, $	-1522
Ventas Terneros, $	60
Costo de Descarte No-reproductivo, $	-198
Costo de Mortalidad, $	-38
Costo de Desecho Reproductivo, $	-59
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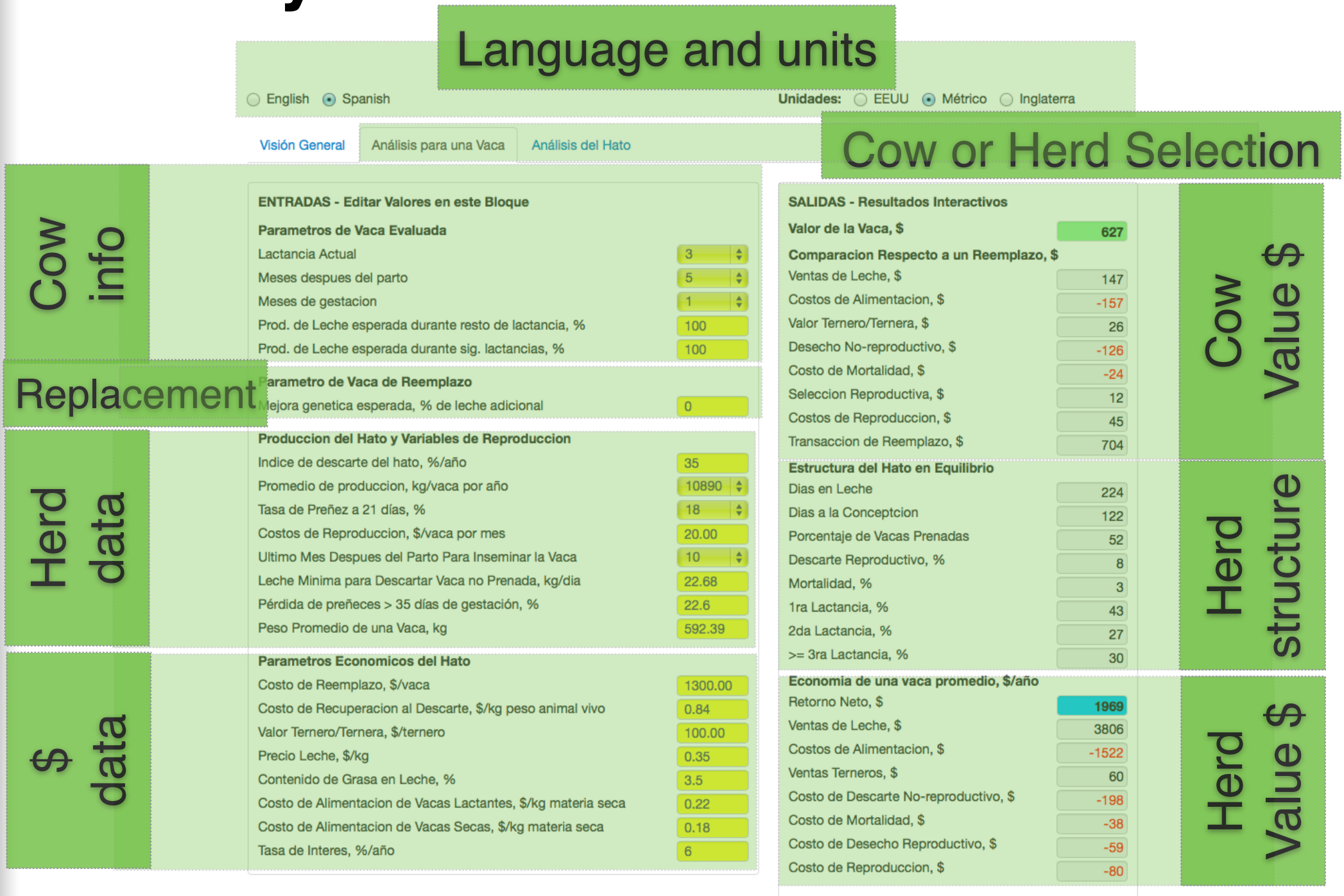
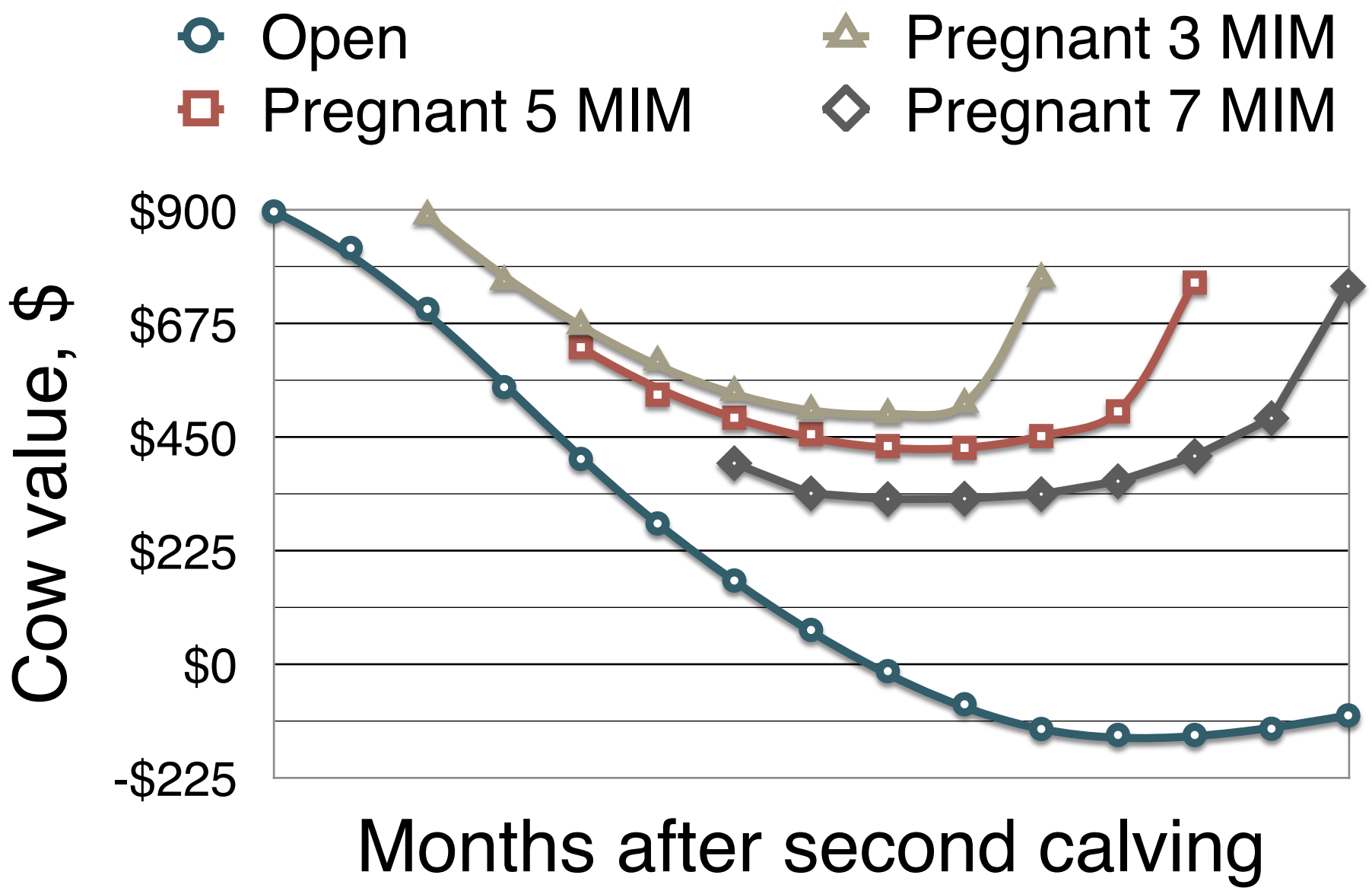
Anatomy Simulator Value of a Cow



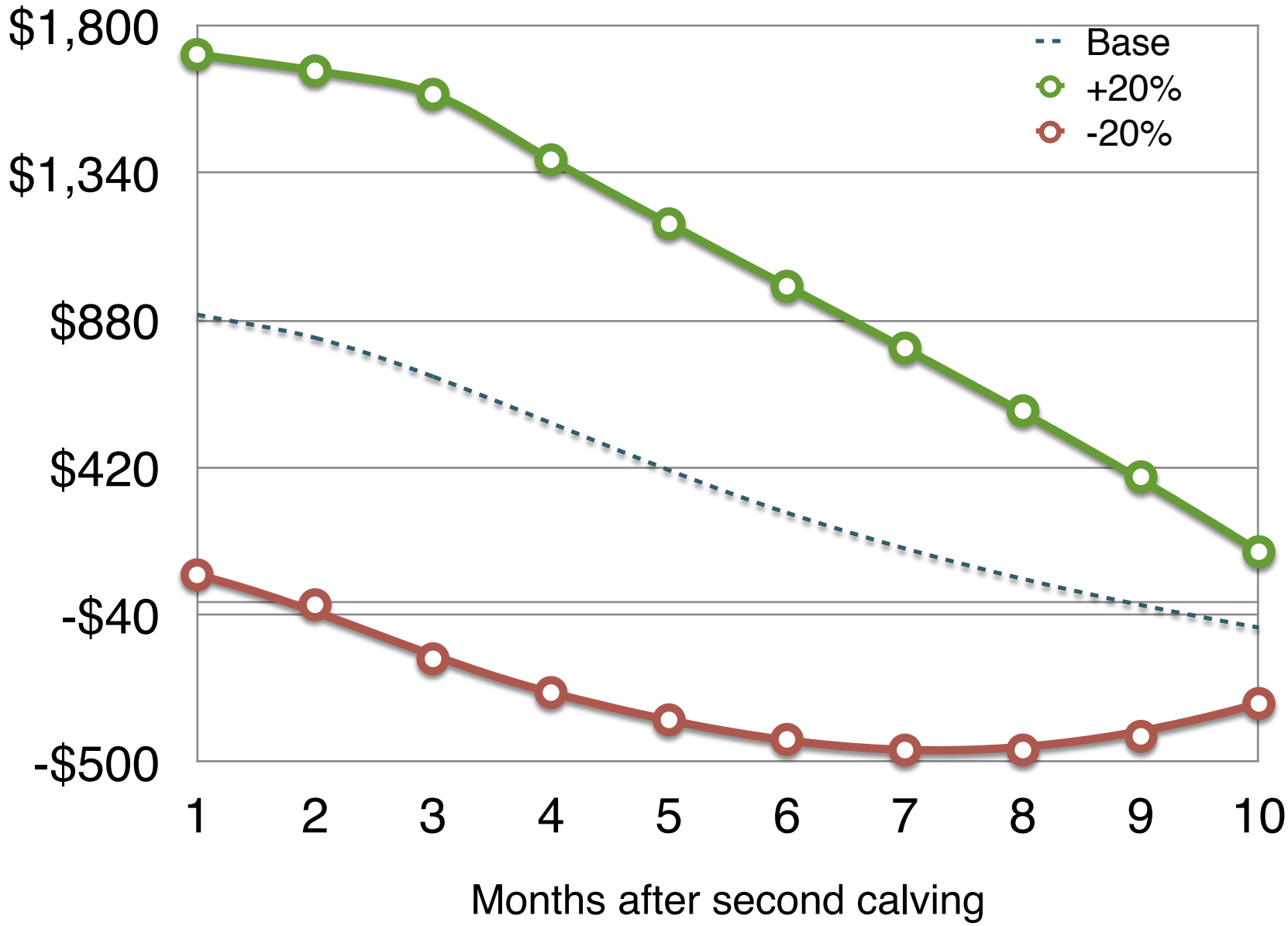
Value of a cow illustration

Average (=100%) cow and replacement



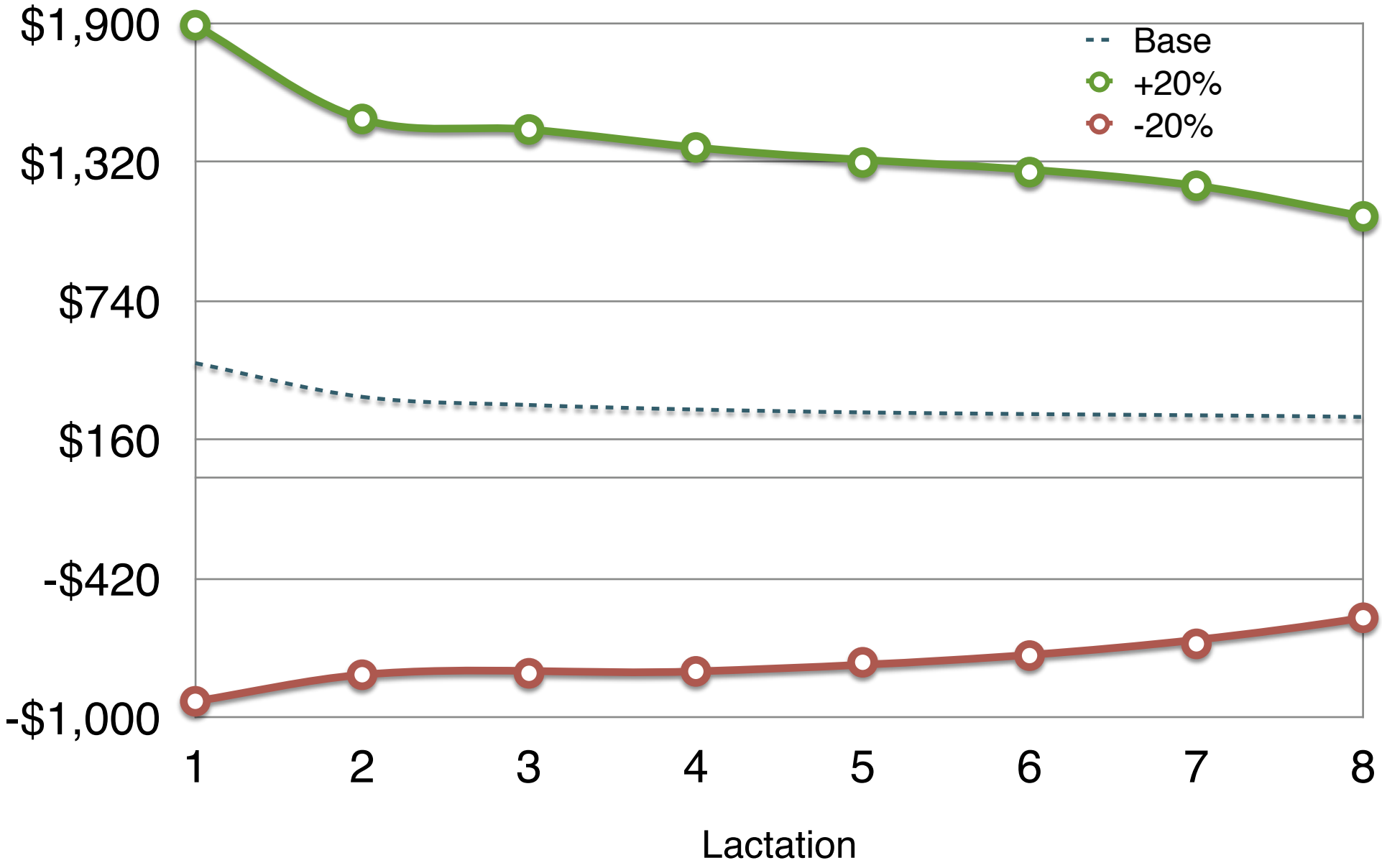
Value of a non-pregnant cow

Impact of milk productivity in future lactations



Pregnant cow (MIM=8, MIP=2)

Impact of milk productivity in future lactations



Expected genetic gain replacement

Genetic gain summarized in milk productivity

Replacement genetic gain

- Cow value is $211 lower for every 1% expected improved milk productivity of a replacement

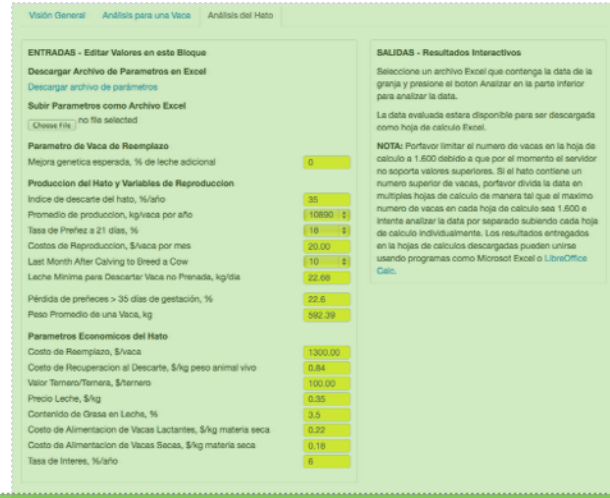
Herd Selection Guide

Available DHI Report

AgSource

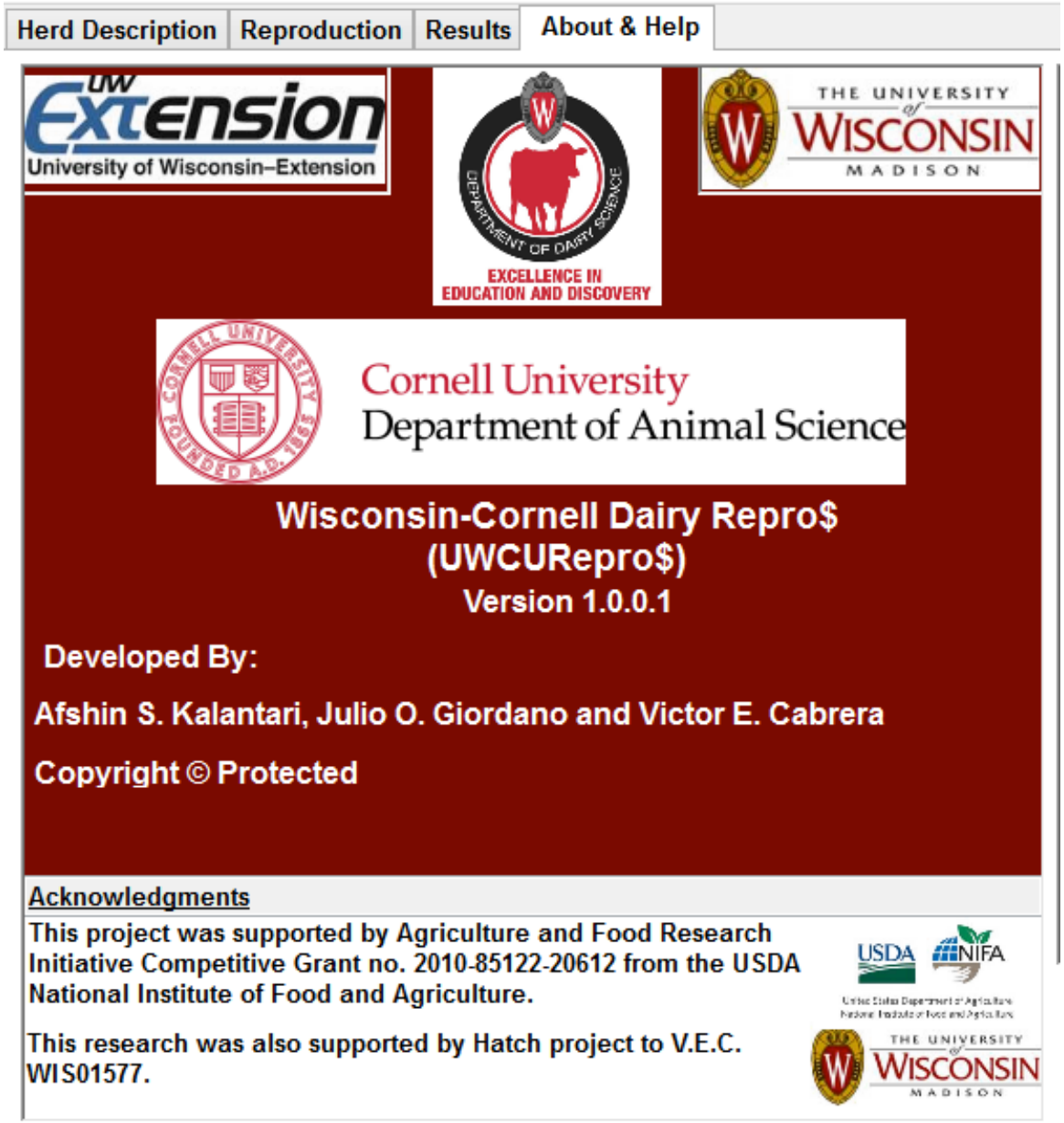
>3,500 herds → Records Monthly → Production Health Statistics → Optional Herd Selection

Optional Herd Selection → Individual cow productivity → Economic Value of a Cow, Herd Analysis → Ranked Cow Values of Herd



Wisconsin-Cornell Dairy Repro$

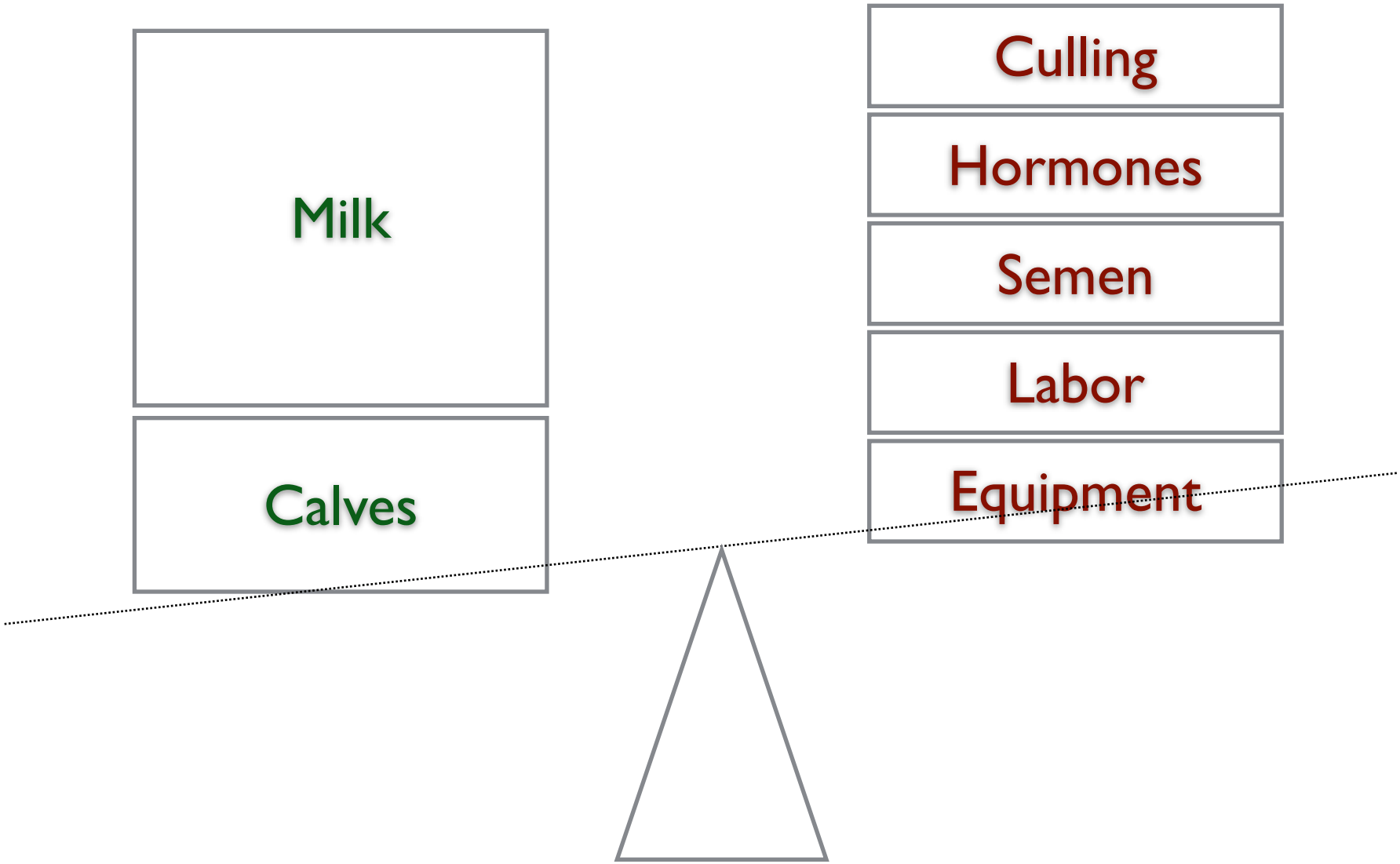
Evaluates reproductive programs



Aids decision-making for **reproductive management programs**

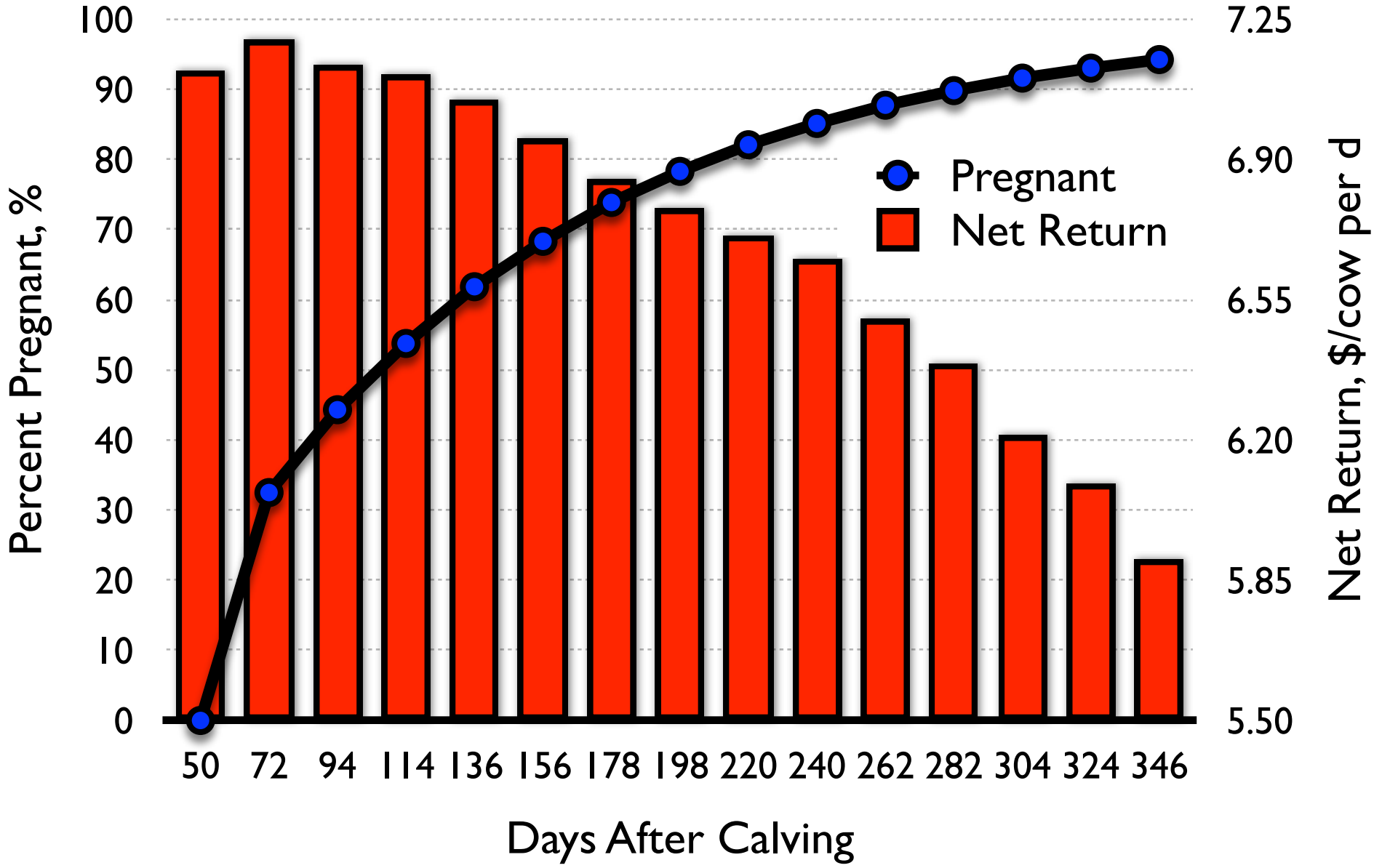
Reproduction Benefits vs. Costs

Very delicate balance



Reproduction Efficiency vs. Net Return

Very involved calculation



Anatomy of UW-CU_Repro$

Herd Information

Herd Parameters

Herd Size (#)	100
Average Body Weight (lb)	1,400
Involuntary Culling (%/yr)	35.0
Mortality Rate(%/yr)	4.0
Stillbirth(%)	4.9

Economic Parameters

Milk Price ($/cwt)	16.00
Cost Feed Lactating ($/lb DM)	0.08
Dry Period Fixed Cost ($/lb DM)	0.06
Female Calf value($)	136
Male Calf value ($)	50
Heifer Replacement Value($)	1,302
Salvage Value ($/lb)	0.526

Market economic information

Anatomy of UW-CU_Repro$

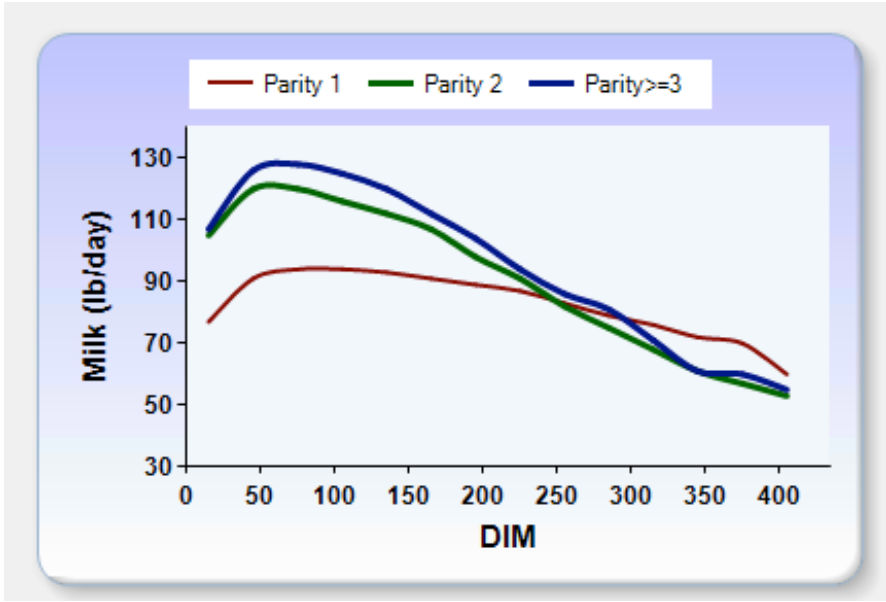
Lactation Curves (lb/cow/test)

Own Farm Lactations (Enter/Edit NUMBERS Below)

DIM	Parity 1	Parity 2	Parity ≥3
15	77	105	107
45	91	120	126
75	94	120	128
105	94	116	125
135	93	112	120
165	91	107	112
195	89	98	104
225	87	91	94
255	83	82	86
285	79	75	81
315	76	68	71
345	72	61	61
375	70	57	60
405	60	53	55

Own Farm Lactations (Enter/Edit NUMBERS Below)

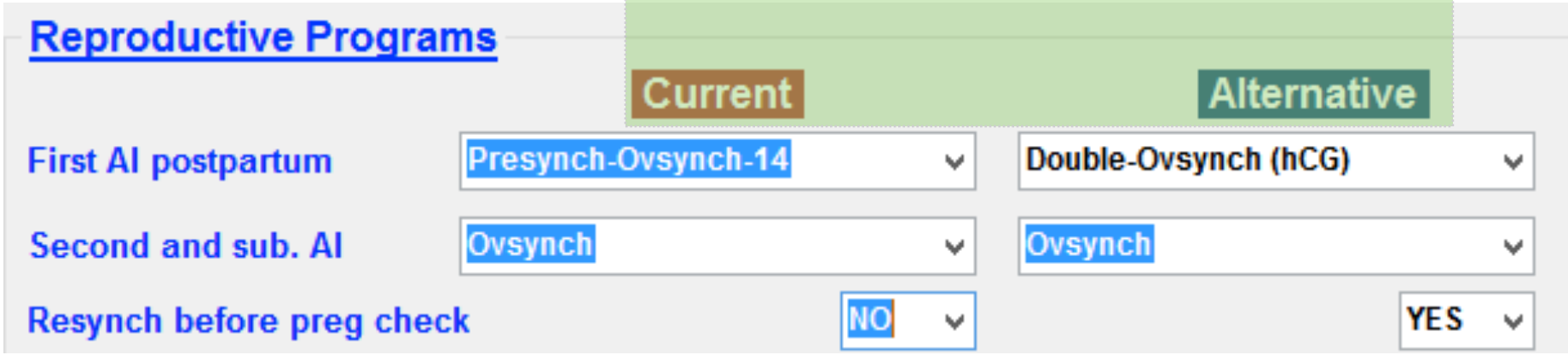
- Own Farm Lactations (Enter/Edit NUMBERS Below)
- Lactations of approximately 18,000 lb milk/cow/year
- Lactations of approximately 19,000 lb milk/cow/year
- Lactations of approximately 20,000 lb milk/cow/year
- Lactations of approximately 21,000 lb milk/cow/year
- Lactations of approximately 22,000 lb milk/cow/year
- Lactations of approximately 23,000 lb milk/cow/year
- Lactations of approximately 24,000 lb milk/cow/year
- Lactations of approximately 25,000 lb milk/cow/year
- Lactations of approximately 26,000 lb milk/cow/year
- Lactations of approximately 27,000 lb milk/cow/year
- Lactations of approximately 28,000 lb milk/cow/year
- Lactations of approximately 29,000 lb milk/cow/year
- Lactations of approximately 30,000 lb milk/cow/year



Important to define herd OWN lactation curves

Anatomy of UW-CU_Repro$

Always compares the “
“alternative

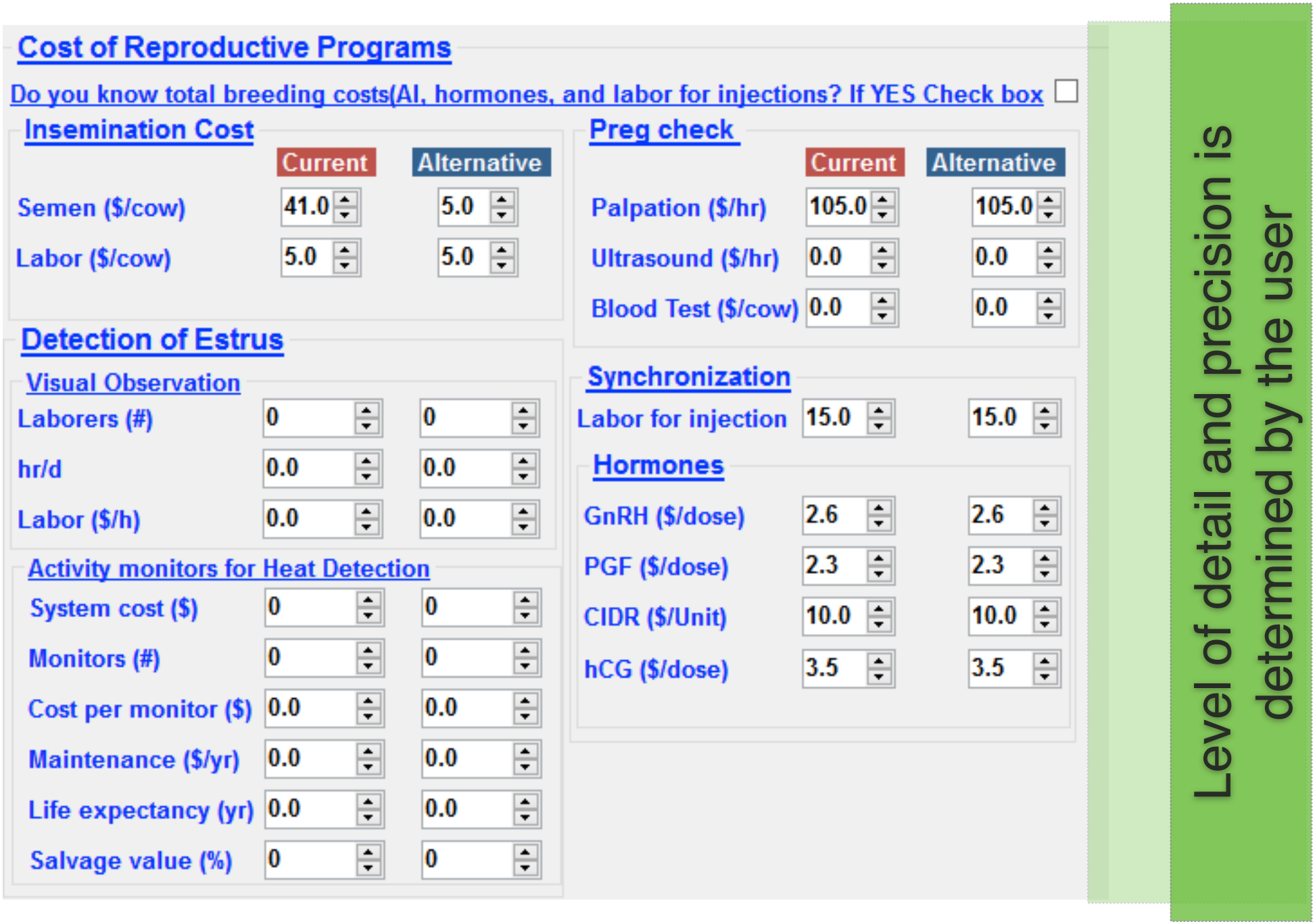


Anatomy of UW-CU_Repro$

Allows for the MOST detailed description of reproductive programs

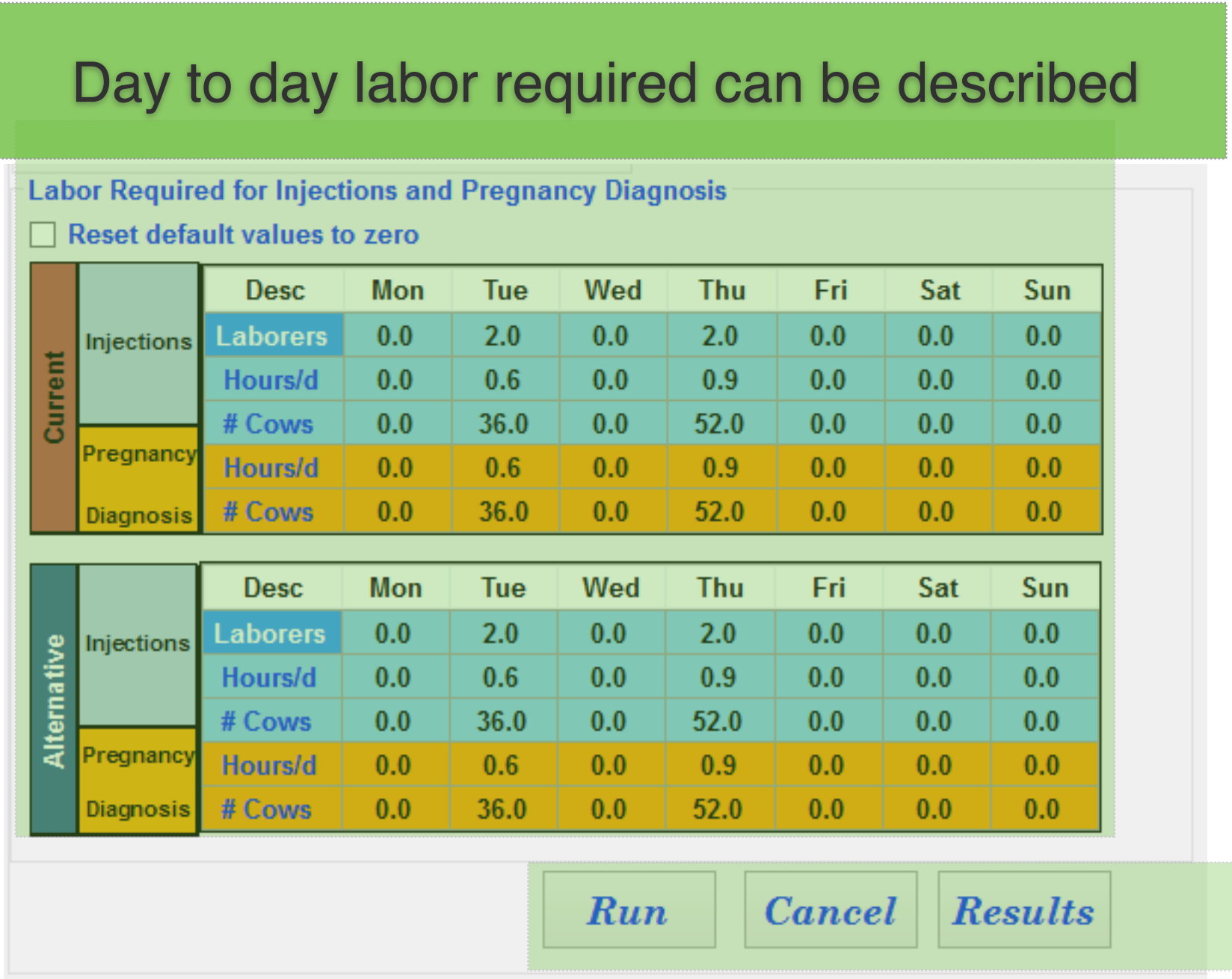
Programs Description	Current	Alternative
VWP (d)	50	50
Estrous Cycle Duration (d)	22	22
Maximum DIM for Breeding	300	300
Do-not-Breed Minimum Milk (lb/d)	50	50
DIM first injection for first AI sync program (d)	36	29
Weekday first injection	Tuesday	Tuesday
Interbreeding interval for TAI services (d)	42	35
Heat bred before first TAI service (%)	80	0
CR heat bred before first TAI service (%)	25	25
CR first TAI service (%)	30	30
Heat bred after first TAI service (%)	80	80
CR heat bred after first TAI service (%)	25	25
CR second and subsequent TAI services (%)	28	28
Pregnancy Diagnosis		
Day in gestation first preg check (d)	39	39
Day in gestation second preg check (d)	67	67
Day in gestation third preg check (d)	221	221

Anatomy of UW-CU_Repro$



Anatomy of UW-CU_Repro$

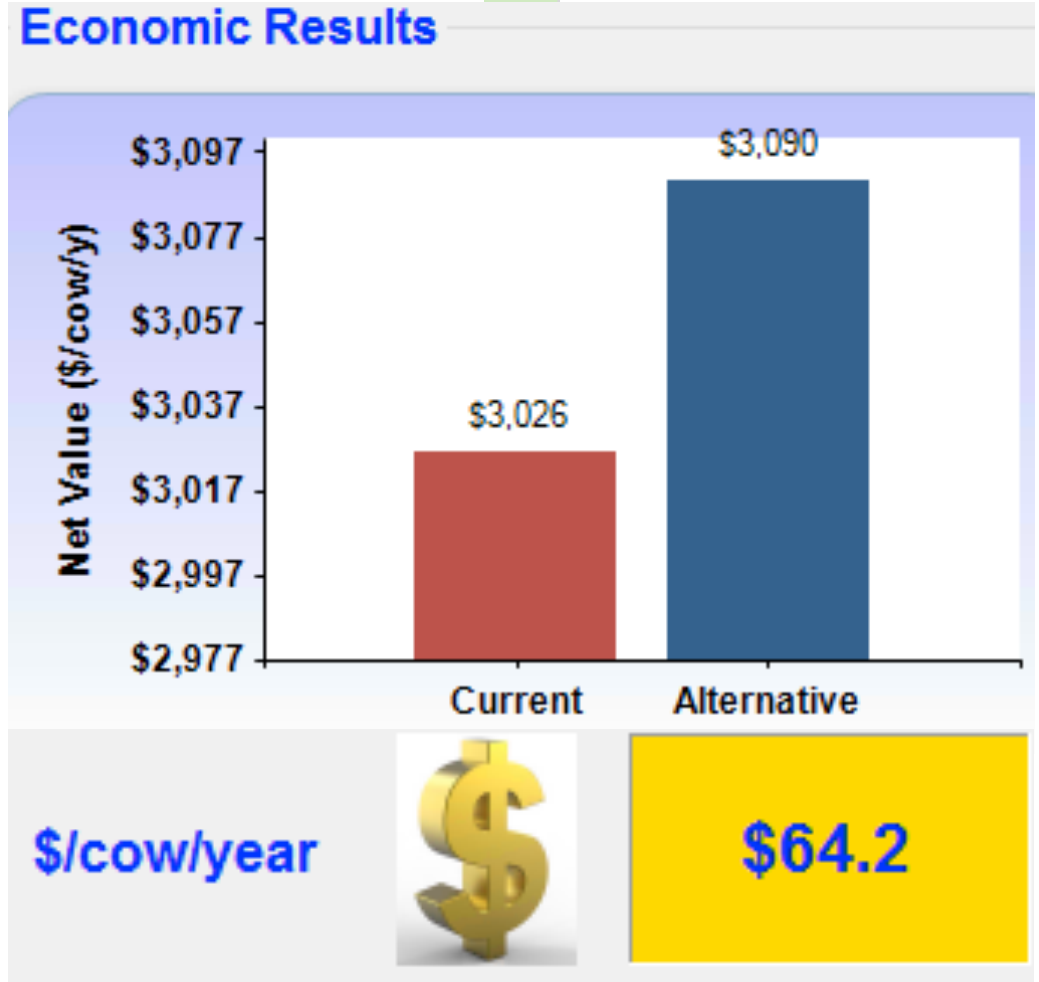
Day to day labor required can be described



DAILY cow-specific simulation model

Results

Economic advantage of ALTERNATIVE program



Results

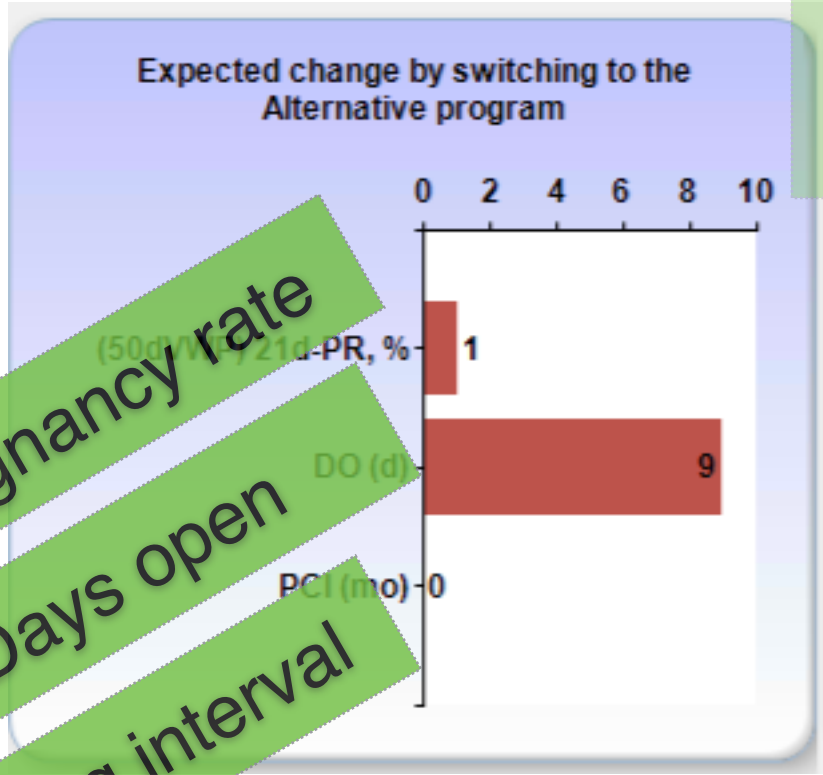
Disaggregated economic factors that contribute to the DIFFERENCE

Contribution to Net Value

Item	Current	Alternative	Diff
Total Net Value ($/cow/y)	3,026.1	3,090.3	64.2
IOFC ($/cow/y)	3,274.9	3,269.3	-5.6
Replacement Cost ($/cow/y)	-193.3	-187.3	6.0
Reproductive Cost ($/cow/y)	-93.1	-30.7	62.4
Calf Value ($/cow/y)	37.6	39.0	1.4

Results

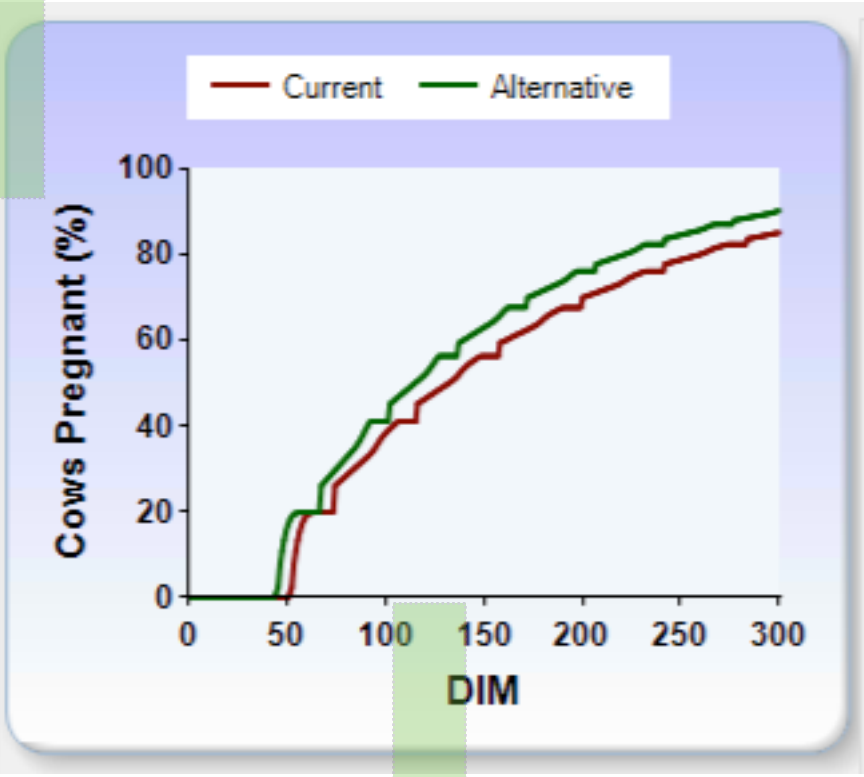
REPRODUCTIVE performance



Pregnancy rate

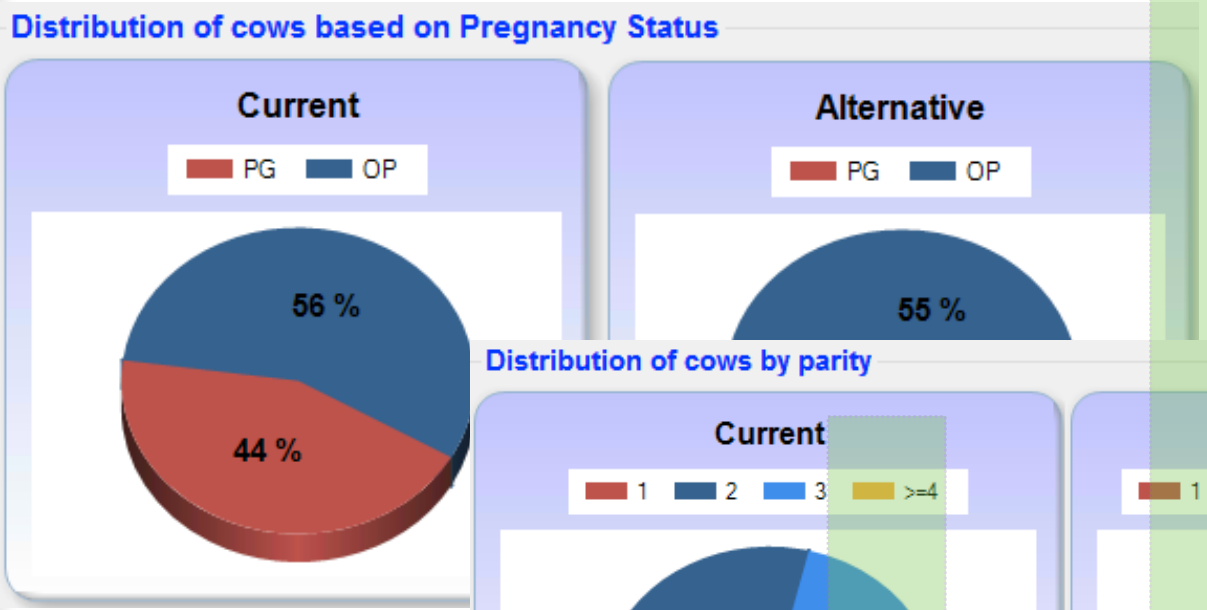
Days open

Calving interval

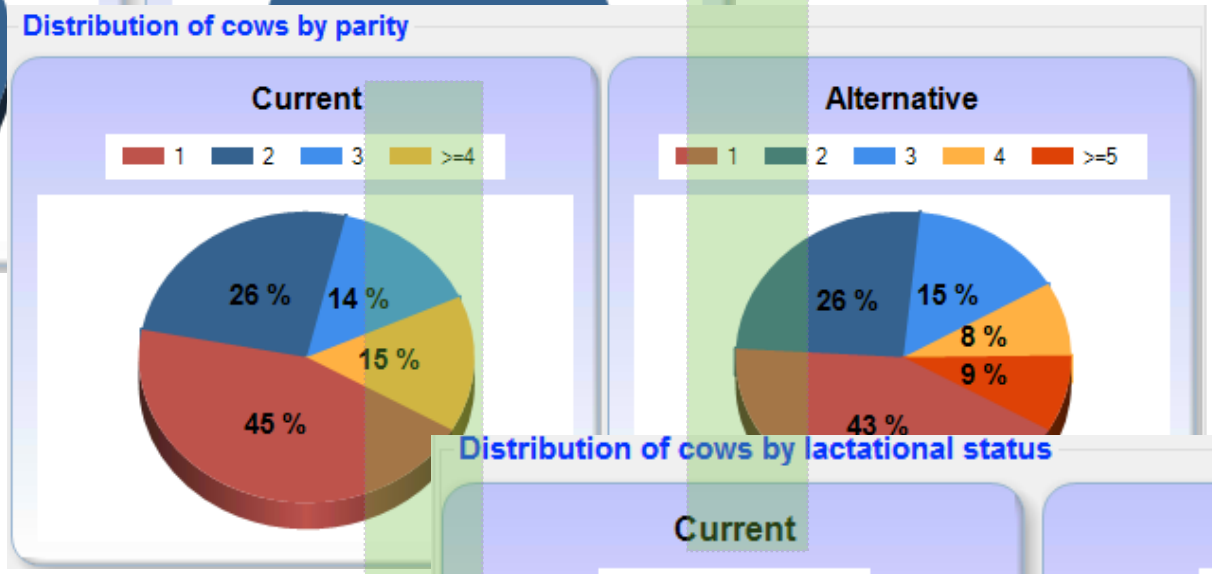


Survival curves

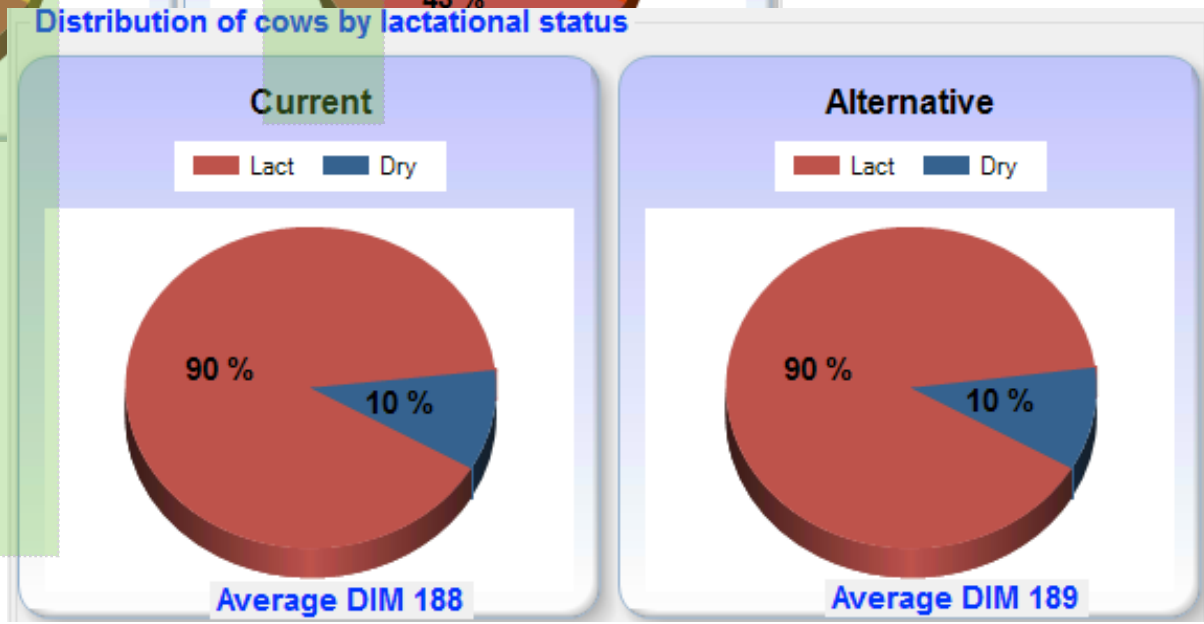
Results



Herd STRUCTURE



By condition, lactation, production



Results

Replacement BALANCE

Cows Leaving the Herd

Item	Current	Alternative	Diff
Total Culling (%)	42.3	40	-2.3
Non-Reproductive Culling (%)	26.6	25.7	-0.9
Mortality (%)	4.2	4	-0.2
Reproductive Culling (%)	11.6	10.3	-1.3

Heifer Supply and Demand

Item	Current	Alternative
Heifer Supply (% of herd/year)	41.2	40.9
Heifer Demand (% of herd/ye...	42.4	40.1
Heifer Balance	-1.2	0.8

Is the herd CAPABLE to maintain its size?